Amendments to the Claims

1. (Previously Presented) A method for detecting the path to a first network device, said method comprising:

receiving a data packet from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

examining the hop count in the received data packet;

if the hop count is one, transmitting a reply data packet toward the source Ethernet address;

if the hop count is greater than one, decrementing the hop count by one to form a modified data packet;

determining at least one port on a network device receiving the data packet, by examining the destination Ethernet address; and

forwarding the modified data packet through the at least one port.

2. (Previously Presented) The method in accordance with claim 1, wherein the modified data packet is not forwarded if the destination Ethernet address is the same as the Ethernet address of the network device receiving the data packet.

3. (Previously Presented) A method for detecting a path to a first network device, comprising:

transmitting from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

receiving the data packet at a third network device;

examining the hop count in the received data packet;

if the hop count is one, transmitting a reply data packet toward the source Ethernet address;

if the hop count is greater than one, decrementing the hop count by one to form a modified data packet;

determining at least one port on the third network device by examining the destination Ethernet address; and

forwarding the modified data packet from the third network device through the at least one port.

4-6. (Cancelled)

7. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for detecting a path to a first network device, the method comprising:

receiving a data packet from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

examining the hop count in the received data packet;

if the hop count is one, transmitting a reply data packet toward the source Ethernet address;

if the hop count is greater than one, decrementing the hop count by one to form a modified data packet;

determining at least one port on a network device receiving the data packet, by examining the destination Ethernet address; and

forwarding the modified data packet from the network device through the at least one port.

8. (Currently Amended) A method for detecting a path to a first network device, said method comprising:

initializing a hop count;

setting a first destination Ethernet address field to be equal to the Ethernet address of the first network device;

setting a first source Ethernet address field to be equal to the Ethernet address of a second network device;

transmitting from the second network device a data packet containing the hop count, the first destination Ethernet address, and the first source Ethernet address to adjacent network devices; and

receiving at the second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the second network device and a second source Ethernet address corresponding to the Ethernet address of one of the adjacent network devices.

9. (Previously Presented) The method in accordance with claim 8, wherein if the second source Ethernet address in the reply data packet is not equal to the Ethernet address of the first network device, the hop count is modified and said transmitting and said receiving are

repeated, wherein the second source Ethernet address corresponds to an Ethernet address of a network device sending the reply data packet.

10. (Previously Presented) The method in accordance with claim 1, wherein the network device is a LAN switch.

11. (Previously Presented) The method in accordance with claim 3, wherein the first network device is a LAN switch.

12. (Previously Presented) The method in accordance with claim 3, wherein the second network device is a LAN switch.

13. (Previously Presented) The method in accordance with claim 3, wherein the third network device is a LAN switch.

14-15. (Cancelled)

16. (Previously Presented) The method in accordance with claim 8, wherein the first network device is a LAN switch.

17. (Previously Presented) The method in accordance with claim 8, wherein the second network device is a LAN switch.

18-22. (Cancelled)

23. (Previously Presented) The method in accordance with claim 1, wherein the reply data packet includes:

a destination Ethernet address corresponding to the second network address; and

a source Ethernet address corresponding to the network device transmitting the reply data packet.

24. (Previously Presented) The method in accordance with claim 1, further comprising:

repeating said receiving, said decrementing, said determining, and said forwarding until the hop count in the data packet received at a network device becomes one.

25. (Previously Presented) The method in accordance with claim 1, wherein said determining includes:

looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the network device.

26. (Previously Presented) The method in accordance with claim 1, wherein the modified data packet is forwarded through all of the ports on the network device if the destination Ethernet address is unknown.

27. (Previously Presented) The method in accordance with claim 1, wherein the data packet is included in a data field of an Ethernet frame.

28. (Previously Presented) A method for detecting the path to a desired network device, said method comprising:

setting a hop count at an initial value;

generating a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet;

transmitting the probe data packet;

receiving a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet;

determining if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device;

incrementing the hop count by one if the reply source Ethernet address is different from the destination Ethernet address of the desired network device; and

repeating said generating, said transmitting, said receiving, said determining, and said incrementing, until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.

29. (Previously Presented) The method in accordance with claim 28, wherein the initial value is one.

30. (Previously Presented) The method in accordance with claim 28, wherein a network device receiving the probe data packet decrements the hop count by one before forwarding the probe data packet to another network device.

31. (Previously Presented) The method in accordance with claim 28, further comprising:
storing information of the network device from which the reply data packet is received.

32. (Previously Presented) An apparatus for detecting the path to a first network device, said apparatus comprising:
means for receiving a data packet from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;
means for examining the hop count in the received data packet;
means for transmitting a reply data packet toward the source Ethernet address if the received hop count is one;
means for decrementing the hop count by one to form a modified data packet if the hop count is greater than one;
means for determining at least one port on a network device receiving the data packet, by examining the destination Ethernet address; and
means for forwarding the modified data packet through the at least one port.

33. (Previously Presented) The apparatus in accordance with claim 32, wherein the modified data packet is not forwarded if the destination Ethernet address is the same as the Ethernet address of the network device receiving the data packet.

34. (Cancelled)

35. (Previously Presented) The apparatus in accordance with claim 32, wherein the reply data packet includes:

a destination Ethernet address corresponding to the second network address; and

a source Ethernet address corresponding to the network device transmitting the reply data packet.

36. (Previously Presented) The apparatus in accordance with claim 32, further comprising:

means for repeating said receiving, said decrementing, said determining, and said forwarding until the hop count in the data packet received at a network device becomes one.

37. (Previously Presented) The apparatus in accordance with claim 32, wherein said means for determining includes:

means for looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the network device.

38. (Previously Presented) The apparatus in accordance with claim 32, wherein the modified data packet is forwarded through all of the ports on the network device if the destination Ethernet address is unknown.

39. (Previously Presented) The apparatus in accordance with claim 32, wherein the data packet is included in a data field of an Ethernet frame.

40. (Previously Presented) An apparatus for detecting the path to a desired network device, said apparatus comprising:

means for setting a hop count at an initial value;

means for generating a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet;

means for transmitting the probe data packet;

means for receiving a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet;

means for determining if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device;

means for incrementing the hop count by one if the reply source Ethernet address is different from the destination Ethernet address of the desired network device; and

means for repeating said generating, said transmitting, said receiving, said determining, and said incrementing, until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.

41. (Previously Presented) The apparatus in accordance with claim 40, wherein the initial value is one.

42. (Previously Presented) The apparatus in accordance with claim 40, wherein a network device receiving the probe data packet decrements the hop count by one before forwarding the probe data packet to another network device.

43. (Previously Presented) The apparatus in accordance with claim 40, further comprising:
means for storing information of the network device from which the reply data packet is received.

44. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for detecting the path to a desired network device, said method comprising:
setting a hop count at an initial value;
generating a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet;

transmitting the probe data packet;

receiving a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet;

determining if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device;

incrementing the hop count by one if the reply source Ethernet address is different from the destination Ethernet address of the desired network device; and

repeating said generating, said transmitting, said receiving, said determining, and said incrementing, until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.

45. (Previously Presented) The method in accordance with claim 8, further comprising:

receiving the data packet at a third network device;

decrementing the hop count by one to form a modified data packet;

determining at least one port on the third network device by examining the first destination Ethernet address; and

forwarding the modified data packet from the third network device through the at least one port.

46. (Previously Presented) The method in accordance with claim 45, wherein the modified data packet is not forwarded if the first destination Ethernet address is the same as the Ethernet address of the third network device.

47. (Currently Amended) The method in accordance with claim 45, further comprising:
examining the hop count in the received data packet; and
transmitting a reply data packet toward the first source Ethernet address if the received hop count is one.

48. (Currently Amended) The method in accordance with claim 47, wherein the ~~replay~~ reply data packet includes:
a destination Ethernet address corresponding to the second network address; and
a source Ethernet address corresponding to the third network device.

49. (Previously Presented) The method in accordance with claim 45, further comprising:
repeating said receiving, said decrementing the hop count, said determining at least one port, and said forwarding until the hop count in the data packet received at a third network device becomes one.

50. (Previously Presented) The method in accordance with claim 45, wherein said determining at least one port includes:
looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the third network device.

51. (Previously Presented) The method in accordance with claim 45, wherein the modified data packet is forwarded through all of the ports on the third network device if the destination Ethernet address is unknown.

52. (Previously Presented) The method in accordance with claim 45, wherein the data packet is included in a data field of an Ethernet frame.

53. (Previously Presented) The method in accordance with claim 8, wherein the hop count is initialized to an initial value of one.

54. (Previously Presented) The method in accordance with claim 9, wherein the hop count is modified by incrementing the hop count by one.

55. (Previously Presented) The method in accordance with claim 9, wherein a network device receiving the data packet decrements the hop count by one before forwarding the data packet to another network device.

56. (Currently Amended) The method in accordance with claim 9, further comprising:
storing information of the network device from which the ~~replay~~ reply data packet is received.

57. (Currently Amended) An apparatus for detecting a path to a first network device, said apparatus comprising:

means for initializing a hop count;

means for setting a first destination Ethernet address field to be equal to the Ethernet address of the first network device;

means for setting a first source Ethernet address field to be equal to the Ethernet address of a second network device;

means for transmitting from the second network device a data packet containing the hop count, the first destination Ethernet address, and the first source Ethernet address to adjacent network devices; and

means for receiving at the second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the second network device and a second source Ethernet address corresponding to the Ethernet address of one of the adjacent network devices.

58. (Previously Presented) The apparatus in accordance with claim 57, further comprising:

means for modifying the hop count if the second source Ethernet address in the reply data packet is not equal to the Ethernet address of the first network device; and

means for repeatedly performing said means for transmitting and said means for receiving, wherein the second source Ethernet address corresponds to an Ethernet address of a network device sending the reply data packet.

59. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for detecting a path to a first network device, said method comprising:

initializing a hop count;

setting a first destination Ethernet address field to be equal to the Ethernet address of the first network device;

setting a first source Ethernet address field to be equal to the Ethernet address of a second network device;

transmitting from the second network device a data packet containing the hop count, the first destination Ethernet address, and the first source Ethernet address to adjacent network devices; and

receiving at the second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the second network device and a second source Ethernet address corresponding to the Ethernet address of one of the adjacent network devices.

60. (Currently Amended) An apparatus for detecting the path to a first network device, said apparatus comprising:

an interface adapted to receive a data packet from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

discovery protocol logic coupled to said interface, adapted to examine the hop count in the received data packet, decrement the hop count by one to form a modified data packet if

the received hop count is greater than one, and transmit a reply data packet through said interface toward the source Ethernet address if the received hop count is one; and

forwarding logic adapted to determine at least one port on said interface by examining the destination Ethernet address, and forward the modified data packet through the at least one ~~port,~~ port.

61. (Previously Presented) The apparatus in accordance with claim 60, wherein said forwarding logic does not forward the modified data packet if the destination Ethernet address is the same as the Ethernet address of a network device on which said apparatus is provided.

62. (Previously Presented) The apparatus in accordance with claim 61, wherein the reply data packet includes:

a destination Ethernet address corresponding to the second network address; and

a source Ethernet address corresponding to the network device transmitting the reply data packet.

63. (Previously Presented) The apparatus in accordance with claim 61, further comprising:

an address table maintaining an association between Ethernet addresses and corresponding ports on the network device.

64. (Previously Presented) The apparatus in accordance with claim 61, wherein the modified data packet is forwarded through all of the ports on said interface if the destination Ethernet address is unknown.

65. (Previously Presented) A apparatus for detecting a path to a first network device, said apparatus comprising:

discovery protocol logic adapted to set a hop count at an initial value and generate a probe data packet containing the hop count, a destination Ethernet address corresponding to the desired network device, and a source Ethernet address corresponding to a source network device sending the probe data packet; and

an interface adapted to transmit the probe data packet and receive a reply data packet from a network device which received the probe data packet containing the hop count one, the reply data packet containing a reply destination Ethernet address corresponding to the source network device and a reply source Ethernet address corresponding to the network device sending the reply data packet,

wherein said discovery protocol logic determines if the reply source Ethernet address is the same as the destination Ethernet address of the desired network device, generates a second probe packet by increments the hop count by one if the reply source Ethernet address is different from the destination Ethernet address of the desired network device, and transmits the second probe packet through said interface until receiving a reply data packet containing a reply source Ethernet address which is the same as the destination Ethernet address of the desired network device.

66. (Previously Presented) The apparatus in accordance with claim 65, wherein the initial value is one.

67. (Previously Presented) The apparatus in accordance with claim 65, further comprising a memory adapted to store information of the network device from which the reply data packet is received.

68. (New) A method for detecting a path to a first network device, said method comprising:

initializing a hop count;

setting a first destination Ethernet address field to be equal to the Ethernet address of the first network device;

setting a first source Ethernet address field to be equal to the Ethernet address of a second network device;

transmitting from the second network device a data packet containing the hop count, the first destination Ethernet address, and the first source Ethernet address to adjacent network devices;

receiving at the second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the second network device and a second source Ethernet address corresponding to the Ethernet address of one of the adjacent network devices;

receiving the data packet at a third network device;

decrementing the hop count by one to form a modified data packet;

determining at least one port on the third network device by examining the first destination Ethernet address; and

forwarding the modified data packet from the third network device through the at least one port.

69. (New) The method in accordance with claim 68, wherein the modified data packet is not forwarded if the first destination Ethernet address is the same as the Ethernet address of the third network device.

70. (New) The method in accordance with claim 68, further comprising:
examining the hop count in the received data packet; and
transmitting a reply data packet toward the first source Ethernet address if the received hop count is one.

71. (New) The method in accordance with claim 70, wherein the reply data packet includes:
a destination Ethernet address corresponding to the second network address; and
a source Ethernet address corresponding to the third network device.

72. (New) The method in accordance with claim 68, further comprising:
repeating said receiving, said decrementing the hop count, said determining at least one port, and said forwarding until the hop count in the data packet received at a third network device becomes one.

73. (New) The method in accordance with claim 68, wherein said determining at least one port includes looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the third network device.

74. (New) The method in accordance with claim 68, wherein the modified data packet is forwarded through all of the ports on the third network device if the destination Ethernet address is unknown.

75. (New) The method in accordance with claim 68, wherein the data packet is included in a data field of an Ethernet frame.

76. (New) A method for detecting a path to a first network device, said method comprising:

initializing a hop count to a value of one;

setting a first destination Ethernet address field to be equal to the Ethernet address of the first network device;

setting a first source Ethernet address field to be equal to the Ethernet address of a second network device;

transmitting from the second network device a data packet containing the hop count, the first destination Ethernet address, and the first source Ethernet address to adjacent network devices; and

receiving at the second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the second network device and a second source Ethernet address corresponding to the Ethernet address of one of the adjacent network devices.

77. (New) The program storage device in accordance with claim 59, wherein if the second source Ethernet address in the reply data packet is not equal to the Ethernet address of the

first network device, the hop count is modified and said transmitting and said receiving are repeated, wherein the second source Ethernet address corresponds to an Ethernet address of a network device sending the reply data packet.

78. (New) The program storage device in accordance with claim 77, wherein the hop count is modified by incrementing the hop count by one.

79. (New) The program storage device in accordance with claim 77, wherein a network device receiving the data packet decrements the hop count by one before forwarding the data packet to another network device.

80. (New) The program storage device in accordance with claim 77, said method further comprising:

storing information of the network device from which the reply data packet is received.

81. (New) The program storage device in accordance with claim 59, wherein the first network device is a LAN switch.

82. (New) The program storage device in accordance with claim 59, wherein the second network device is a LAN switch.

83. (New) The program storage device in accordance with claim 59, said method further comprising:

receiving the data packet at a third network device;

decrementing the hop count by one to form a modified data packet;

determining at least one port on the third network device by examining the first destination Ethernet address; and

forwarding the modified data packet from the third network device through the at least one port.

84. (New) The program storage device in accordance with claim 83, wherein the modified data packet is not forwarded if the first destination Ethernet address is the same as the Ethernet address of the third network device.

85. (New) The program storage device in accordance with claim 83, said method further comprising:

examining the hop count in the received data packet; and

transmitting a reply data packet toward the first source Ethernet address if the received hop count is one.

86. (New) The program storage device in accordance with claim 85, wherein the reply data packet includes:

a destination Ethernet address corresponding to the second network address; and

a source Ethernet address corresponding to the third network device.

87. (New) The program storage device in accordance with claim 83, said method further comprising:

repeating said receiving, said decrementing the hop count, said determining at least one port, and said forwarding until the hop count in the data packet received at a third network device becomes one.

88. (New) The program storage device in accordance with claim 83, wherein said determining at least one port includes looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the third network device.

89. (New) The program storage device in accordance with claim 83, wherein the modified data packet is forwarded through all of the ports on the third network device if the destination Ethernet address is unknown.

90. (New) The program storage device in accordance with claim 83, wherein the data packet is included in a data field of an Ethernet frame.

91. (New) The program storage device in accordance with claim 59, wherein the hop count is initialized to an initial value of one.

92. (New) The apparatus in accordance with claim 58, wherein the means for modifying the hop count further comprises means for modifying the hop count by incrementing the hop count by one.

93. (New) The apparatus in accordance with claim 58, wherein a network device receiving the data packet decrements the hop count by one before forwarding the data packet to another network device.

94. (New) The apparatus in accordance with claim 58, further comprising means for storing information of the network device from which the reply data packet is received.

95. (New) The apparatus in accordance with claim 57, wherein the first network device is a LAN switch.

96. (New) The apparatus in accordance with claim 57, wherein the second network device is a LAN switch.

97. (New) The apparatus in accordance with claim 57, further comprising:

means for receiving the data packet at a third network device;

means for decrementing the hop count by one to form a modified data packet;

means for determining at least one port on the third network device by examining the first destination Ethernet address; and

means for forwarding the modified data packet from the third network device through the at least one port.

98. (New) The apparatus in accordance with claim 97, wherein the modified data packet is not forwarded if the first destination Ethernet address is the same as the Ethernet address of the third network device.

99. (New) The apparatus in accordance with claim 97, further comprising:

means for examining the hop count in the received data packet; and

means for transmitting a reply data packet toward the first source Ethernet address if the received hop count is one.

100. (New) The apparatus in accordance with claim 99, wherein the reply data packet includes:

a destination Ethernet address corresponding to the second network address; and

a source Ethernet address corresponding to the third network device.

101. (New) The apparatus in accordance with claim 97, further comprising:

means for repeating said receiving, said decrementing the hop count, said determining at least one port, and said forwarding until the hop count in the data packet received at a third network device becomes one.

102. (New) The apparatus in accordance with claim 97, wherein said means for determining at least one port includes means for looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the third network device.

103.(New) The apparatus in accordance with claim 97, wherein the modified data packet is forwarded through all of the ports on the third network device if the destination Ethernet address is unknown.

104.(New) The apparatus in accordance with claim 97, wherein the data packet is included in a data field of an Ethernet frame.

105.(New) The apparatus in accordance with claim 57, wherein the hop count is initialized to an initial value of one.

106.(New) An apparatus for detecting a path to a first network device, said apparatus comprising:

discovery protocol logic adapted to:

initialize a hop count;

set a first destination Ethernet address field to be equal to the Ethernet address of the first network device; and

set a first source Ethernet address field to be equal to the Ethernet address of a second network device; and

an interface adapted to:

transmit from the second network device a data packet containing the hop count, the first destination Ethernet address, and the first source Ethernet address to adjacent network devices; and

receive at the second network device a reply data packet containing a second destination Ethernet address corresponding to the Ethernet address of the second network device and a second source Ethernet address corresponding to the Ethernet address of one of the adjacent network devices.

107. (New) The apparatus in accordance with claim 106, wherein said apparatus is further adapted to modify the hop count and repeat the receiving if the second source Ethernet address in the reply data packet is not equal to the Ethernet address of the first network device, wherein the second source Ethernet address corresponds to an Ethernet address of a network device sending the reply data packet.

108. (New) The apparatus in accordance with claim 107, wherein said apparatus is further adapted to modify the hop count by incrementing the hop count by one.

109. (New) The apparatus in accordance with claim 107, wherein a network device receiving the data packet decrements the hop count by one before forwarding the data packet to another network device.

110. (New) The apparatus in accordance with claim 107, said apparatus further adapted to store information of the network device from which the reply data packet is received.

111. (New) The apparatus in accordance with claim 106, wherein the first network device is a LAN switch.

112.(New) The apparatus in accordance with claim 106, wherein the second network device is a LAN switch.

113.(New) The apparatus in accordance with claim 106, said apparatus further adapted to:

receive the data packet at a third network device;

decrement the hop count by one to form a modified data packet;

determine at least one port on the third network device by examining the first destination Ethernet address; and

forward the modified data packet from the third network device through the at least one port.

114.(New) The apparatus in accordance with claim 113, wherein the modified data packet is not forwarded if the first destination Ethernet address is the same as the Ethernet address of the third network device.

115.(New) The apparatus in accordance with claim 113, said apparatus further adapted to:

examine the hop count in the received data packet; and

transmit a reply data packet toward the first source Ethernet address if the received hop count is one.

116.(New) The apparatus in accordance with claim 115, wherein the reply data packet includes:

a destination Ethernet address corresponding to the second network address; and

a source Ethernet address corresponding to the third network device.

117. (New) The apparatus in accordance with claim 113, said apparatus further adapted to repeat said receiving, said decrementing the hop count, said determining at least one port, and said forwarding until the hop count in the data packet received at a third network device becomes one.

118. (New) The apparatus in accordance with claim 113, wherein said apparatus is further adapted to determine at least one port by looking up an address table maintaining an association between Ethernet addresses and corresponding ports on the third network device.

119. (New) The apparatus in accordance with claim 113, wherein said apparatus is further adapted to forward the modified data packet through all of the ports on the third network device if the destination Ethernet address is unknown.

120. (New) The apparatus in accordance with claim 113, wherein the data packet is included in a data field of an Ethernet frame.

121. (New) The apparatus in accordance with claim 106, wherein said apparatus is further adapted to initialize the hop count to a value of one.

122. (New) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for for detecting a path to a first network device, the method comprising:

transmitting from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

receiving the data packet at a third network device;

examining the hop count in the received data packet;

if the hop count is one, transmitting a reply data packet toward the source Ethernet address;

if the hop count is greater than one, decrementing the hop count by one to form a modified data packet;

determining at least one port on the third network device by examining the destination Ethernet address; and

forwarding the modified data packet from the third network device through the at least one port.

123. (New) The program storage device in accordance with claim 122, wherein the first network device is a LAN switch.

124. (New) The program storage device in accordance with claim 122, wherein the second network device is a LAN switch.

125. (New) The program storage device in accordance with claim 122, wherein the third network device is a LAN switch.

126. (New) An apparatus for detecting a path to a first network device, the apparatus comprising:

means for transmitting from a second network device, the data packet containing a hop count, a destination Ethernet address corresponding to the first network device, and a source Ethernet address corresponding to the second network device;

means for receiving the data packet at a third network device;

means for examining the hop count in the received data packet;

means for, if the hop count is one, transmitting a reply data packet toward the source Ethernet address;

means for, if the hop count is greater than one, decrementing the hop count by one to form a modified data packet;

means for determining at least one port on the third network device by examining the destination Ethernet address; and

means for forwarding the modified data packet from the third network device through the at least one port.

127. (New) The apparatus in accordance with claim 126, wherein the first network device is a LAN switch.

128. (New) The apparatus in accordance with claim 126, wherein the second network device is a LAN switch.

129. (New) The apparatus in accordance with claim 126, wherein the third network device is a LAN switch.